

CLAIMS

1. A resin composition based on crystalline polypropylene, comprising

- (a) 3 - 65 % by weight of a component soluble in paraxylene of 23°C ,
- (b) 35 - 97 % by weight of a component soluble in paraxylene of 135 °C and insoluble in paraxylene of 23 °C and
- (c) 0 - 30 % by weight of a component insoluble in paraxylene of 135 °C ,

wherein

the component (a) soluble in paraxylene of 23 °C is composed substantially of an elastomeric constituent (a1) having a content of styrene or its derivative in the range of 0 - 35 % by weight and an intrinsic viscosity $[\eta]$ determined in decalin at 135 °C in the range of 0.1 - 5 dl/g,

the component (b) soluble in paraxylene of 135°C and insoluble in paraxylene of 23 °C is composed substantially of a crystalline polypropylene constituent (b1) having an isotactic pentad proportion (mmmm) of 97 % or higher, a molecular weight distribution expressed by weight-average molecular weight/number-average molecular weight (M_w/M_n), determined by gel permeation chromatography (GPC), of 6 or higher and a molecular weight distribution expressed by z-average molecular weight/weight-average molecular weight (M_z/M_w) of 6 or higher and

the component (c) insoluble in paraxylene of 135°C

is composed substantially of a filler (c1).

2. A resin composition based on crystalline polypropylene, comprising

- (a) 20 - 35 % by weight of a component soluble in paraxylene of 23°C ,
- (b) 43 - 65 % by weight of a component soluble in paraxylene of 135 °C and insoluble in paraxylene of 23 °C and
- (c) 15 - 22 % by weight of a component insoluble in paraxylene of 135 °C ,

wherein

the component (a) soluble in paraxylene of 23 °C is composed substantially of an elastomeric constituent (a1) having a content of styrene or its derivative in the range of 0 - 35 % by weight and an intrinsic viscosity $[\eta]$ determined in decalin at 135 °C in the range of 0.1 - 5 dl/g,

the component (b) soluble in paraxylene of 135°C and insoluble in paraxylene of 23 °C is composed substantially of a crystalline polypropylene constituent (b1) having an isotactic pentad proportion (mmmm) of 98 % or higher, a molecular weight distribution expressed by weight-average molecular weight/number-average molecular weight (M_w/M_n), determined by gel permeation chromatography (GPC), of 9 or higher and a molecular weight distribution expressed by z-average molecular weight/weight-average molecular weight (M_z/M_w) of 8 or higher and

the component (c) insoluble in paraxylene of 135°C is composed substantially of powdery talc having an

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average particle size in the range of 1 - 5 μ m.

3. A resin composition based on crystalline polypropylene as claimed in Claim 1 or 2, wherein the elastomeric constituent (a1) comprises at least one elastomeric constituent selected from the group consisting of

(A-1) an elastomeric constituent, which may or may not be hydrogenated, based on styrene having a styrene content in the range of 10 - 70 % by weight and a conjugated diene content in the range of 30 - 90 % by weight;

(A-2) an ethylene/ α -olefin random copolymer constituent; and

(A-3) an ethylene/ α -olefin/non-conjugated polyene random copolymer constituent.

4. A resin composition based on crystalline polypropylene as claimed in Claim 1 or 2, wherein the elastomeric constituent (a1) comprises at least one elastomer selected from the group consisting of

(A-1) an elastomeric constituent, which may or may not be hydrogenated, based on styrene having 10 - 40 % by weight of a constituent polymer block based on styrene and 60 - 90 % by weight of a constituent polymer block based on a conjugated diene;

(A-2) an ethylene/ α -olefin random copolymer constituent; and

(A-3) an ethylene/ α -olefin/non-conjugated polyene random copolymer constituent.

5. A resin composition based on crystalline

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polypropylene as claimed in Claim 1 or 2, wherein the elastomeric constituent (a1) comprises at least one elastomeric constituent selected from the group consisting of

- (A-1) an elastomeric constituent, which may or may not be hydrogenated, based on styrene having 10 - 70 % by weight of a constituent polymer block based on styrene and 30 - 90 % by weight of a constituent polymer block based on a conjugated diene;
- (A-2) an ethylene/ α -olefin random copolymer constituent;
- (A-3) an ethylene/ α -olefin/non-conjugated polyene random copolymer constituent; and
- (Da) propylene/ethylene copolymer part in a crystalline block-copolymer component based on propylene (D).

6. A resin composition based on crystalline polypropylene as claimed in any one of Claims 1 to 5, wherein the crystalline polypropylene constituent (b1) comprises at least one crystalline polypropylene constituent selected from the group consisting of

- (B-1) a crystalline polypropylene constituent which comprises a high molecular weight polypropylene product having an intrinsic viscosity $[\eta]$, determined in decalin at 135 °C, of 4 - 13 dl/g in an amount in the range of 1 - 35 % by weight and which has a melt flow rate (MFR) of the entire polypropylene constituent, determined at 230°C

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under a load of 2160 g, in the range of 1 - 100 g/10 min., a propylene content in the range of 95 - 100 mole % and an ethylene content in the range of 0 - 5 mole %;

(B-2) crystalline polypropylene constituents other than that of the above (B-1); and

(Db) propylene homopolymer part in the propylene-based crystalline block-copolymer component (D).

7. A resin composition based on crystalline polypropylene as claimed in any one of Claims 1 to 6, wherein the crystalline polypropylene constituent (b1) is composed substantially of a crystalline polypropylene product which comprises a constituent component having a weight-average molecular weight (Mw) for the 121°C elution fraction, determined by cross fractionation chromatograph (CFC), of 3.5×10^5 or higher.

8. A resin composition based on crystalline polypropylene as claimed in any one of Claims 1 to 6, wherein the crystalline polypropylene constituent (b1) is composed substantially of a crystalline polypropylene product which comprises a constituent component having a weight-average molecular weight (Mw) for the 121°C elution fraction, determined by cross fractionation chromatograph (CFC), of 3.5×10^5 or higher and an ethylene content for the highest molecular weight fraction (mM), determined by gel permeation chromatography (GPC), of 45 % by weight or lower.

9. A resin composition based on crystalline polypropylene as claimed in any one of Claims 1 to 8;

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wherein the crystalline polypropylene constituent (b1) is composed substantially of a crystalline polypropylene product which has a melt flow rate (MFR), determined at 230 °C under a load of 2160 g, in the range of 5 - 400 g/10 min.

10. A resin composition based on crystalline polypropylene as claimed in any one of Claims 1 to 8, wherein the crystalline polypropylene constituent (b1) is composed substantially of a crystalline polypropylene product which has a melt flow rate (MFR), determined at 230 °C under a load of 2160 g, in the range of 30 - 150 g/10 min.

11. A resin composition based on crystalline polypropylene as claimed in any one of Claims 1 to 10, which comprises

(A) at least one elastomeric component selected from the group consisting of

(A-1) styrene-based elastomeric constituent, which may or may not be hydrogenated, having a styrene content in the range of 10 - 70 % by weight and a conjugated diene content in the range of 30 - 90 % by weight;

(A-2) an ethylene/ α -olefin random copolymer constituent; and

(A-3) an ethylene/ α -olefin/non-conjugated polyene random copolymer constituent;

(B) at least one crystalline polypropylene constituent selected from the group consisting of

(B-1) a crystalline polypropylene constituent

which comprises a high molecular weight polypropylene product having an intrinsic viscosity $[\eta]$, determined in decalin at 135°C, of 4 - 13 dl/g in an amount in the range of 1 - 35 % by weight and which has a melt flow rate (MFR) of the entire polypropylene constituent, determined at 230 °C under a load of 2160 g, in the range of 1 - 100 g/10 min., a propylene content in the range of 95 - 100 mole % and an ethylene content in the range of 0 - 5 mole % and

(B-2) a crystalline polypropylene constituent other than the above (B-1);

(C) a filler component; and

(D) a crystalline block-copolymer component based on propylene comprising

(Da) a propylene/ethylene copolymer part and

(Db) a propylene homopolymer part

and containing, with respect to the total weight of the copolymer component, 5 - 50 % by weight of the 23 °C paraxylene-soluble component (a) which has an intrinsic viscosity $[\eta]$, determined in decalin at 135°C, of 2 - 10 dl/g and an ethylene content of 15 - 60 mole %,

wherein the propylene/ethylene copolymer part (Da) is substantially the 23°C paraxylene-soluble component (e) and

the propylene homopolymer part (Db) is substantially the component (b) soluble in 135°C

paraxylene and insoluble in 23°C paraxylene and having a melt flow rate (MFR), determined at 230 °C under a load of 2160 g, of 10 - 500 g/10 min. and

wherein the weight ratio of (A)/(B)/(C)/(D) is in the range of (3 - 99)/(1 - 97)/(0 - 30)/(0 - 96).

12. A resin composition based on crystalline polypropylene as claimed in Claim 11, wherein the weight ratio of (A)/(B)/(C)/(D) is in the range of (3 - 40)/(1 - 50)/(0 - 30)/(10 - 96).

13. A resin composition based on crystalline polypropylene as claimed in Claim 11 or 12, wherein the crystalline polypropylene component (B) has an isotactic pentad proportion (mmmm) of 97% or higher.

14. A resin composition based on crystalline polypropylene as claimed in any one of Claims 11 to 13, wherein the crystalline polypropylene component (B) has a molecular weight distribution expressed by weight-average molecular weight/number-average molecular weight (M_w/M_n), determined by a gel permeation chromatography (GPC), of 6 or higher and a molecular weight distribution expressed by z-average molecular weight/weight-average molecular weight (M_z/M_w) of 6 or higher.

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